NPDES Report for the Period January 1 to December 31, 1998
Pierce County, Washington
March 1998

This report describes the ongoing activities of Pierce County in fulfillment of the requirements of the National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge General Permit for discharges from municipal separate storm sewers for the South Puget Sound Water Quality Management Area, and the portion of the Kitsap Water Quality Management Area located in Pierce County.

Assessment of Stormwater Program Needs

The proposed listing of Chinook salmon under the auspices of the Endangered Species Act (ESA) caused us to begin to look for ways to make the actions of County government more "fish friendly", and also to find ways to combine efforts and stretch dollars. To this end, we realized that the required unmet needs analysis for NPDES closely matched a similar effort needed for ESA, and that both tie in with our Basin Planning effort which looks at updating our Capital Improvement Program. A consultant has been hired (January 1999) to carry out and integrate these three efforts. It is expected that the larger, more general overview of needs related to ESA, and the general framework plan which will guide us through our basin plans, will be completed in 1999. A more detailed analysis of unmet needs will take place within the individual basin plans as they proceed, on a time frame to be determined within the first phase of assessment. A budget of approximately $200,000 is allocated for the basin plan framework for 1999, and the second phase of our ESA planning work has a budget of approximately $150,000 for 1999. For 1998-99 ESA work leading to our submittal to the National Marine Fisheries Service (NMFS) on March 9, approximately $130,000 was spent.

Capital Improvement Program

This program saw the greatest increase in activity for 1998 due to the rate increase approved by the County Council in October 1997, and collected in April and October 1998. Personnel additions brought the CIP group to 8.5 FTE. An additional Civil Engineer 2 (project design) reported to work on December 28, and an Engineering Technician 2 (contract administration) was hired in December and reported to work on January 4, 1999, meaning that we started 1999 with 10.5 FTE in this group. Instead of assigning 1 FTE CE2 as liaison to Planning and Land Services as indicated in the SWMP, areas of the county were assigned to engineers, and they work with PALS as needed for proposed projects within their area. Table 1 outlines the CIP projects and expenditures for 1998. It should be noted that one CIP project, Rocky Bay, was done purely for water quality reasons.

River Activities

Buyouts and Grants

In 1998, we purchased 40 acres of riverine floodplain at a cost of $387,339 utilizing Pierce County Funds. An additional riverine flood-prone home and 2 acres were purchased at a cost of $110,000 utilizing HUD/CDBG funding. Total cost for 1998 is $497,339.

These parcels will be cleared of all improvements and put into permanent open space. These parcels are part of the County's program to preserve the riverine corridor for flood damage reduction and water quality enhancement.

Setback Levees

In 1998, we completed the third and final segment of our Puyallup River (Ford to Filbin) setback levee at milepost PR 23.0 thru PR 24.8. The total project length is approximately 10,000 lineal feet. The project was co-sponsored by the USACOE. The total project cost for land and construction was approximately $3.6 million.

The benefits include reintroducing approximately 175 acres of side channel and floodplain back to the river mainstem, thereby increasing/improving spawning and rearing habitat. The project also removed homes, improvements, materials storage and some agricultural uses from the floodplain, thereby reducing the potential water contamination resulting from flood inundation.

Garbage Cleanup

In 1998, we removed and disposed of 30 tons of trash from the riverine and urban environments. This included removal of garbage, tires, automobiles, asphalt roofing and other items at a cost of $20,000.

The benefits are cleaner surface and groundwater by eliminating the potential for these materials to flow into the systems during routine or flood flows and the related water contamination potential.

Watershed Planning

Projects within the Watershed Planning group for 1998 included :

1. The development of the KGI Watershed Action Plan
2. The implementation of the Chambers-Clover Creek Watershed Action Plan
3. Beginning research and initial writing for the Upper Puyallup Watershed Characterization
4. Coordinating with and assisting the Puyallup River Watershed Council

These items are further discussed below:

1. During 1998 the Characterization of the KGI watershed was completed and the Watershed Committee formed Action Items or public policy statements to

address the obvious non-point source water quality problems. Approximately $150,000 was expended last year on this project.

2. A new employee was assigned to implementation duties associated with the Chambers Clover Creek Watershed Action Plan. Pursuing the sign-off or approval from the few Lead Implementers, who did not commit the first time around in 1995, has been most important. Approximately $20,000 was expended last year on this project.

3. A consultant was chosen to gather information and draft the Characterization for the Upper Puyallup Watershed Plan. Ninety percent of the work was completed in 1998. Approximately $50,000 was spent last year on this project.

4. A watershed coordinator was hired by the county in 1998 to assist the Puyallup River Watershed Council with their work plans and obligations. He has been very busy.

With the possible listing by the National Marine Fisheries Service of Chinook salmon as an threatened species, the county has actively pursued a working relationship with the Council to assist them with associated obligations. Basic council formation duties such as drafting by-laws, and organizing committees has also been very time consuming. Approximately $40,000 was spent last year on this project.

Controlling Runoff from New Development and Redevelopment

The Development Engineering Section is responsible for ensuring that development and redevelopment occurs in accordance with the requirements of the County's Stormwater Management and Site Development Ordinance. The section employs 17 FTEs and has a budget of $1.2 million. During 1998, the Development Engineering Section maintained the following staffing specifically in an effort to meet the ordinance requirements:

A) We employed three CEII plan reviewers who reviewed the designs of proposed road, storm drainage, clearing, and impervious surface type-projects for compliance with the County's Stormwater Management and Site Development Ordinance. Ten percent of their time was spent implementing the ordinance requirements.

B) We employed one ETIII plan reviewer and one CEI plan reviewer who assisted and worked under the direction of the CEII plan reviewers. Fifteen percent of their time was spent implementing the ordinance requirements.

C) We employed three and one-half ETIII inspectors who performed erosion control inspections and permanent BMP inspections on road, storm drainage, commercial, subdivision, and industrial-type developments. (One ETIII inspector spends half of his time on road, storm drainage, commercial,

subdivision, and industrial-type developments and the other half on single family construction.) Ten percent of their time was dedicated to implementing the ordinance requirements.

D) We employed two and one-half ETIII inspectors who performed erosion control inspections on single family home construction. One hundred percent of their time was dedicated to implementing the ordinance requirements.

E) We employed one CEII engineer to handle violations and complaints related to stormwater, erosion, filling and flooding. For the first three-quarters of the year, this employee spent twenty-five percent of his/her time documenting violations and trying to bring violations sites into compliance with the ordinance requirements. For the final one-quarter of the year, this employee spent one hundred percent of his/her time pursuing violations of the ordinance.

F) We employed one ETIII inspector to investigate and document potential violations of the ordinance requirements. One hundred percent of this inspector's time was spent on ordinance violations.

G) We employed one ETIII counter technician to assist single family building permit applicants in implementing necessary storm drainage and erosion control BMPs that are a requirement of the ordinance. Fifty percent of this position's time was spent on these issues.

H) We employed two OAII office assistants and one part time OAII office assistant to provide support for CEII , CEI, and ETIII staff. Twenty percent of their time was spent providing support to staff for issues relating to ordinance implementation.

I) We employed one Development Engineering Supervisor. The supervisor was responsible for directing staff in the implementation of the ordinance. Approximately ten percent of the supervisor's time was spent on issues related to ordinance implementation.

The Development Engineering Section expended approximately $400,000 during 1998 implementing the Stormwater Management and Site Development ordinance. Currently, a large part of our workload is on projects that are vested under older stormwater, erosion control, and grading ordinances. It is expected that even if staffing levels remain at their current level, Development Engineering's expenditures implementing the new ordinance will increase in future years as vested projects are completed, and the workload swings to new (unvested) projects.

The Code Enforcement Section of the Planning Department is responsible for investigation and enforcement of numerous County ordinances, and they act as

the central clearinghouse for complaints. The Code Enforcement Section supports implementation of the Stormwater Management and Site Development Ordinance by fielding and documenting complaints pertaining to storm drainage, erosion, sedimentation, and flooding. The Code Enforcement Section employed five employees in 1998. One employee spent twenty-five percent of his/her time receiving and documenting complaints pertaining to ordinance violations. In 1998, the Code Enforcement Section expended approximately $9,000 specifically supporting the Development Engineering Section in enforcement of the ordinance requirements. The Code Enforcement Section's expenditure for all enforcement activities was approximately $405,000 in 1998.

In 1998, approximately 3,500 site development permits were approved. A site development permit is required whenever the proposed construction triggers certain thresholds for amount of clearing, amount of excavation, or amount of proposed impervious surface. These 3,500 permits covered projects as small as erosion control for single family home construction on up to stormwater conveyance, quantity, and quality facilities for subdivision or commercial project construction. A total of approximately 5,200 inspections were performed. This number reflects erosion control inspections, storm drainage system (conveyance, quality, quantity) inspections, and excavation inspections for single family, subdivision, commercial, and industrial projects. This number also includes projects that were vested under older ordinances, as well as the current ordinance. Although we did not specifically track the number of inspections that were attributable to the Stormwater Management and Site Development Ordinance, we estimate that 3,300 of the 5,200 inspections were triggered by the new ordinance's requirements. Approximately 110 of the 3,300 inspections were on permanent BMP installations, and the remainder were on single family residence construction. We will be revising our process this year to more closely track inspections related to the new ordinance.

In 1998, the Development Engineering Section logged 370 total complaints pertaining to drainage and erosion issues. The breakdown of those complaints is as follows:

295 - filling and grading
17 - drainage system failures
25 - flooding of private property
27 - flooding related to development
4 - potential site development violations
2 - runoff from construction sites

Seventy-five of these complaints were on permitted sites; 56 of the complaints were not violations; 239 of the complaints were valid violations.

Investigations/inspections were performed on 204 of the complaints; investigations/inspections on the remaining 31 complaints are still pending.

Seventy of the complaints pertaining to permitted sites have been resolved; 34 of the complaints to violation sites (unpermitted) have been resolved.

To summarize, progress was made in 1998 in educating the development community and staff about the requirements of the new ordinance. The inspectors made headway in controlling erosion on single family residence construction with 85 percent of single family residences passing the initial inspection. However, the following areas require improvement:

- Maintenance of erosion control facilities on single family residences by contractors/builders.
- With implementation of the new ordinance, County review times have increased three to five fold, without a similar increase in reviewers. To keep up with State-mandated turnaround times, the quality of the review, and thus, the quality of the end product is sometimes sacrificed.
- There are potentially a large number of violation sites that go unaddressed as we currently only respond to complaints, and there are violations that do not draw complaints.
- There is a shortage of engineers/inspectors and contractors in the industry that have been certified as Erosion and Sediment Control Leads
- Actual implementation of temporary stabilization measures in a timely fashion by contractors.
- Need to implement the fine procedure.
- Correction of failing storm systems by developers.
- Bringing violation sites into compliance.

Groundwater

The Tacoma-Pierce County Health Department Source Protection Program had a busy and successful year in 1998. Activities conducted included:

- The Source Protection Program conducted a Recreational Shellfish Program in 1998 with financial and technical assistance from the Washington State Department of Health. Activities conducted in 1998 included beach evaluation work, public education, and Paralytic Shellfish Poison (PSP) monitoring and notification. Program staff participated in an innovative and collaborative effort, initiated by the Washington State Department of Fish and Wildlife, to better work with and educate the Asian-Pacific-Islanders (API) community on recreational shellfish issues. The incidence of PSP in 1998 for Pierce County was quite high, with

record high concentrations being recorded for several beaches and the occurrence of two PSP-related illnesses. FTE: 0.2 COSTS: $7,600

- In its first full year of operation, the On-Site Sewage Operation and Maintenance (O&M) Program permitted approximately 3,400 new and existing systems. These included single- and multi-family residences, community systems, commercial buildings, and food service establishments. System as-built drawings, brochures and other information has been distributed to system owners and users as part of a program to increase awareness of septic system issues. Staff developed requirements for certification of private-sector service providers which include training, experience, and examination to demonstrate competency. FTE: 1.8 COSTS: $125,000

- The Source Protection Program received grant monies to repair failing on-site sewage systems in the community of Burnett that were degrading water quality in South Prairie Creek. Activities accomplished in 1998 included the repair of 15 failing systems using a variety of treatment technologies. The systems will be monitored over the next several years to assess treatment performance. FTE: 0.3 COSTS: $200,000

- The Source Protection Program continued developing a map of Wellhead Protection Areas for use by spill response personnel. Currently, water system locations and recharge areas are not taken into consideration by spill responders and yet spills have the potential to significantly impact drinking water supplies. Source Protection staff have been working with Pierce County Emergency Management and Pierce County Information System staff since 1997 to input wells and Wellhead Protection Areas into the Pierce County Geographic Information System (GIS). The map, which is expected to be completed in the summer 1999, will be an important tool in protecting our drinking water supplies. FTE: 0.1 COSTS: $7,000

- The Source Protection Program conducted a bathing beach sampling program during the summer of 1998 to assess health concerns to swimmers at seven public swimming beaches. Sampling was conducted weekly over most of the summer for water temperature, pH, conductivity, fecal coliform concentrations, number of water fowl present, and number of swimmers present. The action level used to assess health concerns was the primary water contact (swimming) criteria in the Water Quality Standards for Surface Waters of the State of Washington (WAC 173-201A). Public beaches at two lakes frequently had high fecal coliform concentrations, leading the Source Protection Program to issue press releases and post signs recommending against swimming. FTE: 0.1 COSTS: $8,000

- Long-term monitoring project staff continued to monitor water quality and quantity of approximately 140 wells throughout Pierce County. Discussions have been held with a number of agencies and organizations about building a surface water monitoring program, utilizing existing monitoring efforts to the extent possible, that would be linked to the ground water data. This would provide a better understanding of the surface-ground water relationship in Pierce County. The ground water data is currently being stored in MapInfo using an Access database but will is expected to be incorporated into Pierce County's County View GIS in the future. FTE: 1.5 COSTS: $120,000

- The Source Protection Program, with assistance from Pierce County Public Works and Utilities and the Regional Water Association of Pierce County, applied for and was awarded a $47,706 grant to organize the planning committee that will develop a comprehensive water plan for the Chambers-Clover Creek Watershed (WRIA 12). This is the first phase of what is expected to be a three phase project that will likely take four or five years to complete, provided that funding is available. The project is building upon previous planning projects in the watershed and will work in close coordination with Pierce County's ongoing NPDES permit program, the Endangered Species Act response effort, and the nonpoint pollution control efforts (WAC 400-12). FTE: 0.1 for 1998 COSTS: $3,000 for 1998

Water Programs serves as the Lead Agency in the implementation of the Pierce County Coordinated Water System Plan (CWSP). The CWSP serves as the management and planning framework for water supply development in Pierce County. As the Lead Agency, Water Programs is responsible for such tasks as processing "timely and reasonable" water service disputes, reviewing water system plans and maintaining service area boundary maps. Additionally, consistent with the CWSP, Water Programs is pursuing the formation of a wholesale water utility, which we hope to have in place in 1999.

Annexations, Incorporations and Exemptions

In 1998 there were 2 annexations by the city of Puyallup and one by the city of Auburn. All three were minor, and had little impact to our rate base. Exemptions from stormwater fees were granted to churches, granges, community centers and Indian trust lands in 1998, and amounted to a loss in revenue of $183,825. Exemptions for county parks and disabled seniors (state mandate) were passed in 1998, and will take effect in 1999.

Change in Water Quality Status of Waterbodies

There were 2 known changes in addition to those occurring on the State's submittal for the 303d list. Private Creek (WRIA 15, Mayo Cove basin) has had water quality improvement for fecal coliform and pH, apparently because a nearby horse farm is no longer an active operation. Burley Lagoon (WRIA 15, Burley-Minter basin) was downgraded for shellfish rearing and consumption due to fecal coliform. A shellfish protection district will be formed by the cooperating entities (Pierce and Kitsap Counties) in 1999.

Industrial Inspection Program

Two additional inspectors were hired at the end of 1997, and were on staff for all of 1998, bringing to three the number of FTEs in Water Programs that work on drainage investigations, industrial inspection, monitoring and CIP support (one additional engineering technician works almost exclusively on drainage investigation, and maintenance issues). This staff did 21 perimeter inspections of NPDES permitted facilities, and investigated 18 specific water quality complaints that were received. Pretreatment staff did 49 on-site inspections of businesses in the sewered areas of the county. We also gained the ability to use the same ACCESS database that Pretreatment uses, and all 3 inspectors received training in this database.

An investigation, inspection and enforcement manual was developed by inspections staff and put into use in April 1998. This guidance manual lays out specific responsibilities for different agencies within the County, and outlines standard inspection protocols to ensure timely and unbiased inspection and enforcement actions.

The number of inspections is expected to increase in 1999. Some specific difficulties encountered included disparities between SIC code classifications and land use codes used by the County assessor, thus leading to missed businesses when trying to pull information off our computer data base. We also found that CIP support work, specifically groundwater monitoring, took much more time than anticipated. In 1999, we will be examining the need for additional personnel for the field. We also found difficulty with charging a fee for permits relating to current businesses' ability to discharge into the County storm sewer system. We will be returning to the County Council in early 1999 to request modification to the Illicit Discharges Ordinance in order to have the fee removed.

There is a disparity in the budget figures given in the budget sheet at the end of this report. Due to the manner in which both industrial inspection and monitoring numbers are set up in our accounting system, if an activity could not be charged to a specific basin, it generally ended up being charged within our NPDES Coordination number. For instance, the development of the Inspection manual was clearly tied to the Inspection program, but because it was for all basins, it was charged to Coordination, thus leaving the Inspection charge amount artificially low. We will work toward remedying this in 1999, as it was not until the drafting of this report that the anomaly came to be noticed.

Monitoring Program

Monitoring was started at Squally Creek (BMP evaluation), and continued at Rocky Bay (identify sources of fecal coliform). Monitoring at Heritage Glen (BMP evaluation) was not begun until January 1999. We have not yet started our catchbasin monitoring. We are currently discussing whether enough data exists from other municipalities to change the scope of this project to how to improve the performance of these structures, or expand the scope beyond just one test site. We will be discussing these potential changes with Ecology in early 1999. We have also not begun monitoring of the Cascadia site. We have discussed monitoring needs with the proponents of this project (the largest development currently proposed in the United States), and they seem willing to build what we want into their long-term monitoring plans. They are unwilling to start this monitoring, however, until they have approval to go ahead with the first phase of the development.

– Fall '99 in SWMP

The evaluation of air quality data will be completed by mid-1999, and a report submitted to Ecology upon completion.

As mentioned under **Industrial Inspections**, CIP support monitoring became a much larger part of our mission than we had anticipated. Over 1998 and into early 1999, the number of groundwater monitoring wells expanded to 23, read at least weekly in the rainy season. Gauges and wells at ponds require more frequent reading, especially when they are on flood watch. Due to our expanded CIP program, flow monitoring has expanded greatly as well. Please note that we were not able to separate monitoring numbers for CIP, so they are rolled into the total CIP numbers, and are not reflected in the monitoring budget numbers. Again, we will be evaluating personnel needs for this function in 1999 for the 2000 budget.

As required, personnel did an end-of-pipe check on each outfall in unincorporated Pierce County. This was done during the dry season. No problems were detected. It will be done again in 1999.

A table listing all current monitoring sites is included in Table 2.

Education Program

Environmental Education Events: $200,000

In 1998 we sponsored 459 environmental education events reaching almost 14,000 people throughout Pierce County. Solid waste events numbered 197 and water events made up 262 of the total. Staffing level was 4 FTEs.

Following is a description of our activities.

CLASSROOM PRESENTATIONS:

We offer two classroom presentations to public and private schools, homeschoolers, and other youth groups in the County.

No Time to Waste teaches K- 12 students about alternatives to disposal. A short lesson on reading hazardous product labels and less or non-toxic alternatives is included in this presentation for students in 3rd grade and above. Non-toxic household cleaner recipe cards are provided to each student. Curricula and background information on hazardous substances are provided to each teacher.

Bite of the Finite is geared for 6th grade and up. This role-playing simulation teaches students about finite resources that go into the products we use everyday. The environmental impacts of raw material extraction is investigated

Water We Doing? This presentation is available for 1st-12th grade students. Water and habitat requirements for salmon are discussed along with typical stresses and impacts from humans. Students learn how to reduce their impacts to fish. Handouts on nonpoint pollution and alternatives to hazardous products are provided for each student. Teachers receive curricula on water issues.

Watersheds and You is geared a little higher for 4th -12th grade students who have some exposure to water issues or who are preparing to work on field projects. The dynamics of land and water interactions in watersheds is covered along with typical non-point sources of pollution. Students learn how to reduce their impacts to water resources. Educational materials on non-point pollution, alternatives to hazardous products, and information on field project opportunities is provided. Teachers receive water curricula.

TEACHER /ADULT WORKSHOPS:

WET and Wild

Ten hour workshops based on Project WET (Water Education for Teachers) and Aquatic Wild are provided. In January a workshop was held for fifteen teachers from the Puyallup Watershed.

Composting Workshops

A workshop was held in January to provide guidance on how to set up and manage a small to mid-size compost system to reduce waste and avoid

impacting water resources. Nursery owners, landscapers, and Conservation District staff from two counties attended. Fourteen participants attended.

Composting workshops for backyard composters were held through Tacoma Community College and Pierce College continuing education program.

DISPLAYS/BROCHURES/OUTREACH MATERIALS:
Brochures, flyers, displays and other materials are developed to promote and support our outreach programs. The flood display was set up in several libraries through the flood season. Thousands of brochures go out to the fairs, public events and schools every year.

LIBRARY OF RESOURCES:
We loan educational materials including books, videos, curricula, field equipment and activity kits. In 1998 we loaned materials to fulfill 68 requests from schools, libraries, volunteer monitors, organizations, and private citizens.

FAIRS/COMMUNITY EDUCATION

Puyallup Spring Fair
Exhibits on flooding, green gardening, salmon, water conservation and other topics were set up at the Puyallup Spring Fair in April. Educational materials on these and other topics were distributed to the public.

Key Peninsula Shellfish Festival
A consortium of agencies worked with Elliot's Restaurant to sponsor a fair in July to educate local residents about impacts to shellfish from on-site systems and other nonpoint sources. About 300 people attended the festival.

Pierce County Student Congress
In May we invited 200 4^{th} - 12^{th} grade students and teachers who had been involved with monitoring or stewardship projects to Camp Seymour to share information about their projects. Students also attended workshops on water related topics.

Other Events
Community organizations frequently request displays, staff and presentations for their events. We provided resources for the Tahoma Land Conservancy, Snake Lake, Special Olympics, ECAP Center, Pierce County Parks, school science fairs in 1998.

VOLUNTEER EDUCATION/EVENTS

Field Projects
Our educators work with students in the field to sample macroinvertebrate populations, conduct water quality tests, work on revegetation projects, and learn about the environment. We also loan equipment for these activities.

Citizen Shoreline Inventory
We work with Adopt a Beach and People for Puget Sound to train volunteers to collect information about shorelines in Pierce County. Monitors document a variety characteristics including vegetations, signs of pollution, erosion, shoreline structures, and upland development.

COORDINATION ACTIVITIES
Pierce County Environmental Educators
To encourage coordination in environmental education throughout the County, we sponsor periodic meetings to provide educators with the chance to meet and share information about their programs. In 1998 we sponsored three meetings.

Green Book
Every year we publish and distribute hundreds of copies of the *Green Book,* which is a directory of environmental education programs in Pierce County.

Puyallup Watershed Monitoring Task Force
We worked with the Puyallup Watershed Council to survey volunteer and professional monitoring programs in the Puyallup Watershed. We helped them identify and survey volunteer monitoring groups, and helped coordinate a workshop for monitors.

Operation and Maintenance of Stormwater Facilities (Water Programs)
This was the first year in which Water Programs had revenue sufficient to begin a facilities maintenance program, so it will be listed here separately from Roads maintenance.

Pond Maintenance
In 1998, 61 ponds received some level of maintenance activity. Activities included silt removal, clearing, grading, control structure vactoring, fencing, and fence repair. The cost of this activity was $346,455.

Creek Maintenance
In 1998, crews performed work on Clover, Clarks, Clear, and South Prairie Creeks in unincorporated Pierce County. The work consisted primarily of vegetation management and/or siltation removal from designed traps. The work was performed by County maintenance crews as well as our District Court Probation/Detention crews at a cost of $15,000.

Vegetation Control and Plantings (Riverine areas)
Vegetation control is multi-benefit. We must keep access ways clear of unruly and/or non-indigenous vegetation for maintenance crew activities, as well as for avoidance of structural damage to the levee and flood abatement structure. This work must be accomplished with compliance to tribal agreements and regulatory codes, while also maintaining vegetation that is conducive and beneficial to the fisheries resource.

District Court Probation/Detention Crew
In 1998, Pierce County Water Programs utilized crews to assist in pond clearing and brushing, trash pickup, demolition and disposal of floodprone homes and property, creek clearing and/or enhancement at a cost of $77,500.

17,400 labor hours in 1998 at $10/hr is $174,000 worth of work at a cost of $77,500.

In 1998, we cleared and graded approximately 8 miles of levee access roads at a cost of $15,718. At the same time, we planted approximately 35,000 willow plantings along the Puyallup River bank corridor, at a cost of $8,822.

Operation and Maintenance of Streets and Roads

The addition of a person to coordinate Roads activities with Water Programs and NPDES activities has worked well in its first year. Responsibility for the Service Response System was transferred to Roads, thus improving data entry and timeliness in assigning investigations.

MAINTENANCE ACTIVITIES
Table 3 gives the maintenance functions related to water quality which were performed by Roads in 1998.

IMPROVEMENTS TO ROAD SHOPS
Currently in process of hiring an Architect to prepare plans and specifications for a water recycling wash facility for the Puyallup and Elk Plain Road Shops. A sediment settling pond was designed and installed at the Purdy Road Shop to control on-site erosion. A perimeter fence was installed at the Elk Plain Road Shop to eliminate garbage disposal on the County Shop property.

NATURE AND NUMBER OF INSPECTIONS IN RESPONSE TO COMPLAINTS
Through the Service Response System (SRS), Road Operations Engineering field staff reviewed approximately 100 complaints dealing with storm water issues and flooding concerns. Complaints were resolved by Road Operations field crews relieving blockages and cleaning conveyance systems. More complex issues were resolved through engineering designs for updating/repairing existing systems.

NUMBER OF INSPECTIONS OF PERMANENT BMPs
Situations are minimal dealing with the construction of permanent BMPs since Road Operations is primarily maintenance oriented. We have installed erosion blankets, rock-lined channels, hydroseeding and oil/water separators as part of our maintenance program. These are inspected during construction and after construction for performance. The number of these type of installations amount to approximately 150 per year County-wide.

VEGETATION MANAGEMENT PROGRAM

Contractors to the County continued to apply herbicides to maintain shoulders with soil residual chemical. This application is done March through May annually. The same contractors apply herbicides to brush species annually to control invasive vegetation and eliminate sight distance problems. This application is done October through December. Annually we treat approximately 1700 acres with soil residual herbicides at a cost to the County of $172,900.

For Brush control we treat 1750 shoulder miles of roadway in Pierce County for a total cost of approximately $92,000. No brush control spraying is done within the incorporated cities due to the lack of rural roads.

Noxious weed control has a contractor assigned full time to address concerns of the public, road operations, and of the weed control board. Pierce County spends approximately $140,000 controlling noxious weeds, and on other activities which may require backpack application of herbicides. Edgewood and Lakewood also utilize our contractors for noxious weed control. The total cost to the cities is on average $2400- $3000.

On a Countywide basis we have reduced the amount of herbicides used on our road system by 30% since 1993. The use of contractors has stabilized the use of these chemicals significantly by limiting the amount of road acreage in which chemical is applied on an annual basis.

We are coordinating other activities with the herbicide application including mowing, brushcutting, and shoulder work.

Currently, we are researching alternatives to the way we currently maintain our road system. By implementing these research areas, we can evaluate different types of herbicide application, ground cover plantings, varieties of grasses which we can use within our roadways and ditches, and reduction of area that herbicides are actually applied. We currently have 32 plots which are being monitored for 5 years to determine feasibility, cost, effectiveness, aesthetics, and overall performance. These research areas are established within the Purdy and Elk Plain districts with future expansion into the Puyallup district planned as additional tests are implemented for ESA and water quality. Successful alternatives will be implemented within our road system to reduce maintenance needs countywide.

Service Request System (SRS)

Since moving the Service Request System to Road Operations in May, 1998, we have added personnel to different responsiblities so that we may respond better to storm events. During storm events we may receive 150 calls in a week. With additional people to download the calls and enter the initial request into the system, we can forward them to the correct division more quickly. This is the

only way we can hope to eliminate the duplicate activity of numerous divisions responding to the same request because the citizen called many different numbers (as often happens).

We also changed the floodline message request to provide an additional phone number for those who are having problems in a private development. This provided the public a quicker response by initially defining the area of responsibility and drawing on the Code Enforcement staff of Planning and Land Services for initial data entry and site inspection.

The floodline has received calls concerning erosion and sediment control from construction sites, blocked ditches or culverts, and holding pond problems.

Best Management Practices Manual
A Road Operations Annual Work Plan Best Management Practices (BMP's) manual was produced in compliance with the Pierce County Stormwater Management and Site Development Manual. It was developed as part of an overall program to assist Road Operations supervisors, crew chiefs, operators, and crew in protecting the environment by using specific erosion control practices while performing daily tasks and responding to emergencies. The manual provides an environmentally-focused guide for Road Operations staff to use while performing activities within sensitive areas.

The manual provides a description of the soil erosion process and methods of control. The routine and emergency tasks addressed include bridge maintenance, ditching, drainage repair, mowing, shoulder maintenance, paving, slide removal, storm drain cleaning and dust control. The controls include containment, restoration, barriers, diversion, filtration and traps.

Training and oversight will follow the issuance of the manual. We have reviewed several pertinent videos concerning erosion control and spill containment for use in instruction. A staff member was certified in the Washington State Department of Transportation Construction Site Erosion and Spill Control course.

The production of the manual has helped to focus attention on the need to always consider the environmental impact of any maintenance actiivity. To this end, we are adding the specific BMP's to all engineering plans in Road Operations. We are also having pre-construction meetings to discuss the projects prior to construction.

A copy of this manual is included in this submittal.

Vactor waste disposal research
Three existing vactor waste decant sites were visited in Washington and Oregon this year by Maintenance Operations staff. The sites were in Springfield, Oregon, and the City of Fife and Snohomish County in Washington. At this time,

we feel that the Springfield site could be adapted to our needs if funding was available. We will formulate a plan to this end.

We currently have one vactor waste decant test site at the Chambers Creek Road Shop. We have installed an asphalt drainage pad for dumping vactor waste which is filtered and then empties into a series of drainage structures for sediment decanting. We have tried various methods of filtering: straw bales, filter fabric wrapped gabion baskets filled with rock, triangular silt dikes, and continuous berm rolls. We have also tested catch basin filter bags.

NPDES Coordination

With the advent of ESA concerns in 1998, the need for interlocal cooperation and agreements became even more evident than it had under NPDES. Because these two programs will be so closely integrated at all levels, we have chosen to use the ESA process for needed agreements. This will increase efficiencies for all concerned.

We did perform a survey, map checking followed by field verification, of all areas in the county where we share stormwater conveyance with other municipalities. It is listed in Table 4. This will be of use in the preparation of agreements with other entities.

Watershed-wide Coordination Activities

Pierce County continued to meet quarterly with the other NPDES permittees. The advent of ESA issues have caused King, Pierce, and Snohomish Counties, and the cities within them, to initiate coordination efforts that go far beyond what was required for NPDES, and which will greatly benefit research and information in the water quality arena.

Adequate Information to Conduct Planning, Priority Setting and Program Evaluation Activities

The year 1998 was extremely productive for Pierce County in terms of improving mapping. A digital ortho flight was done for the entire County,expanding our mapping from just the urban areas. This mapping is currently undergoing field verification for all drainage structures. Twelve departments are spending $800,000 for the ortho effort in 1998-1999, and an additional $350,000 for the drainage verification in 1999.

A pond survey was also completed by Water Programs in 1998. We now have an inventory of 186 publicly owned and maintained ponds, and information to supplement the database with digital photos, as-builts, design data, current conditions, and maintenance records.

Water Programs had 1FTE that was devoted strictly to mapping in 1998. This will also be the case for 1999.

Pesticide Management

In addition to the activities outlined by Roads, Pierce County Parks and Recreation continued to follow the practices as outlined in the SWMP. Parks realizes that with ESA and NPDES water quality issues, better studies and information, continued training and improved materials, and more manual labor sources (District Court Crew and Purdy Treatment Center Work Crews), they will continue to improve both application and non-application processes.

Pierce County Conservation District and Stream Team

Water Programs continued to fund basic operations for the PCCD and Stream Team. The PCCD continued to leverage this money into additional funding via grants. For instance, they obtained a $126,000 grant to do a fish passage inventory in the Puyallup Watershed. The PCCD quarterly report for Oct-Dec 1998 is attached, as is the Salmon Project Summary for 1996-1998. The levels of cooperation and partnering have been outstanding.

Stream Team continues to act as an important educational tool for the county. Citizen involvement has been growing steadily, as people develop a sense of stewardship for the streams in their neighborhoods. This interest is expected to grow as ESA issues become more prominent in the public eye. The PCCD also obtained a grant to add another coordinator to this effort.

Attached to this report is a summary of Stream Team activities for 1998.

TABLE 1 - 1998 CIP EXPENDITURES

Project Description	1998 Activity & Current Status	1998 Expenditure
D320 – Park Ave & 103rd St. E Pipeline. Prevent flooding of mixed residential, commercial & light industrial area.	80% design and right-of-way acquisition. Anticipate construction in 1999.	$599,197
D329 – South Hill Pump Station – Pump excess storm water from pothole areas directly to the Puyallup River to prevent flooding of residences and county roads.	Preliminary design, land acquisition and survey. Construction of pipe systems may begin in 1999.	$191,783
D821 – Rogers Ridge – Pipe storm water away from community septic drainfield and prevent flooding of county road.	Constructed. Complete.	$191,719
D140 – Fife Heights Pond – Detention pond to prevent downstream erosion and flooding.	Constructed. Complete.	$501,875
D806 – Quail Run – Install additional conveyance systems and enlarge existing detention ponds to eliminate residential flooding and downstream erosion.	80% design and right-of-way acquisition. Anticipate construction in 1999.	$147,023
D131 – 192nd & Canyon – Study of groundwater flooding problem. Includes installation of monitoring wells and long term monitoring.	On-going. Hope to have recommendations for potential solutions by end of 1999.	$22,109
D303 – North Fork Clover Creek Detention Pond..	Under Construction. Project to be completed in 1999.	$1,283,168
D319 – Sand Pit Pond – Construct infiltration pond to prevent flooding of roads and residences	Preliminary design and Survey. Construction scheduled for 2000	$16,771
D325 – Afdem Regional Retention Pond – Convert old gravel pit into regional infiltration pond. Will allow County to resolve numerous drainage problems within the area.	Under Construction. Project to be completed in 1999.	$2,192,067
D327 – W-1 Pond. Construct an 80 acre-ft pond on major tributary of Clover Creek to reduce downstream flooding and erosion	Preliminary design, survey and groundwater monitoring.	$20,897
D612 – Rocky Bay. Channel storm	Constructed. Complete.	$125,922

Project Description	1998 Activity & Current Status	1998 Expenditure
water through a bio-swale and eliminate flooding of residential septic systems.		
Miscellaneous CIP – Other small studies and preliminary designs for incidental projects	On-going	$10,517
	Total	**5,305,046**

TABLE 2 - MONITORING LOCATIONS

SITE_ID	SITE_NAME	GPS_HEIGHT	MAINT_BY	PURPOSE	CHARGE_NUM	HYDRO_TYPE	GAUGE_TYPE	DOE_TAG_	NSTAL_DAT	WTRSHED_NU	DISTRICT_N	RTSQ	PARCEL_NUM	STREET_ADD	PROPERTY_T
MS001	SOUTH PRAIRIE	634.384	WP	NPDES	D082-43007	Precip	PG			23	1	051901	0519017041	10515 234th Ave (So Prairie)	PUB
MS002	RHODES LAKE COUNTY PIT	642.169	WP	NPDES	D082-43015	Grnwat	OT			7	1	051911	0519111008	2208 120th St E (Buckley)	PUB
MS003	QUARRY OUTLET	344.723	WP	NPDES	D082-43016	Pond	FM			23	1	051806	0518064000	Albert Bell Rd	PUB
MS004	QUARRY INLET	453.993	WP	NPDES	D082-43016	Pond	WQ			23	1	051806	0518064002	Albert Bell Rd	PUB
MS005	PUY RD SHOP	529.971	WP	NPDES	D082-43003	Precip	PG			3	2	041922	0419223702	Bananola Wy E / Meridian	PUB
MS006	HERITAGE GLEN EAST	531.236	WP	CIP	D082-43003	Pond	FM			3	2	041915	0419154069	14210 113th Ave E	PUB
MS007	HERITAGE GLEN WEST	524.728	WP	CIP	D082-43003	Pond	WQ			3	2	041915	0419154069	14210 113th Ave E	PUB
MS008	HEMLOCK PND A	546.254	WP	NPDES	D329-99903	Pond	SG		10199801	3	2	041914	0419147027	116th Ave E / 144th St E	PUB
MS009	ATES 2	549.452	WP	CIP	D329-99903	Grnwat	MW	ACR759		3	2	041914	7890570070	12422 139th St Ct E	PUB
MS010	ATES 5	554.520	WP	CIP	D329-99903	Grnwat	MW	ACR757		3	2	041914	0419143030	12422 139th St Ct E	PVT
MS011	ATES 3	553.089	WP	CIP	D329-99903	Grnwat	MW	ACR758		3	2	041914	0419143013	12422 139th St Ct E	PUB
MS012	ATES 1	549.895	WP	CIP	D329-99903	Pond	MW	ACR760		3	2	041914	0419143019	12318 136th St E	PUB
MS014	ATES 4	554.547	WP	CIP	D329-99903	Pond	MW	ACR761		3	2	041914	0419143020	13617 122nd Ave E	PVT
MS015	ATES P014	553.595	WP	CIP	D329-99903	Grnwat	MW			3	2	041914	0419143031	14121 122nd Ave	PVT
MS016	160TH 82ND	445.016	WP	CIP	D319-99906	Ditch	FM			6	2	041920	3156000191	15702 82nd Ave	PUB
MS017	ELK PLAIN	432.238	WP	NPDES	D082-43006	Precip	PG			6	1	031814	0318142001	23101 Mnt Hwy E	PUB
MS018	PURDY RD SHOP	139.686	WP	NPDES	D082-43010	Precip	PG			5	7	012224	0122244017	PURDY	PUB
MS019	CHAMBERS RD SHOP	238.413	WP	NPDES	MEP#6200	OTHER	OT			2	6	022028	0220282009	9820 Chambers Cr Rd	PUB
MS020	W103	361.756	WP	CIP	D327-99906	Gndwat	MW			6	3	031910	0319104050	12327 Aqueduct Dr E	PUB
MS021	W105	360.055	WP	CIP	D327-99906	Grnwat	MW	ACR754		6	3	031910	0319104029	12327 Aqueduct Dr E	PUB
MS022	W104	370.873	WP	CIP	D327-99906	Grnwat	MW	ACR753		6	3	031910	031910104017	12327 Aqueduct Dr E	PUB
MS023	W101	376.677	WP	CIP	D327-99906	Grnwat	MW	ACR752		6	3	031910	0319104048	12327 Aqueduct Dr E	PUB
MS024	W102	376.725	WP	CIP	D327-99906	Grnwat	MW	ACR751		6	3	031910	0319104046	12327 Aqueduct Dr E	PUB
MS026	9TH ST PIT	433.727	WP	NPDES	MEP-6200	Other	OT			3	2	041909	4320002360	9401 94th Ave E	PUB
MS028	TULE LK 10A	297.052	WP	CIP	D072-99906	Grnwat	MW	ACJ790		6	3	031917		13012 10th Ave S	PUB
MS029	138TH A ST WELL1	312.848	WP	CIP	D072-99906	Grnwat	MW	ACJ571		6	3	031916	2695002940	13603 "A" St S	PVT
MS030	138TH A ST WELL2	313.593	WP	CIP	D072-99906	Grnwat	MW	ACJ572		6	3	031916	031916001	13603 "A" St S	PUB
MS031	136TH GOLDEN GIVEN	320.669	USGS	CIP		Stream	FM			6	3	031915	5585000080	136th Golden Diven	PVT
MS032	PC PRARIE PIT	373.826	WP	NPDES	MEP-6200	Other	WP			6	1	031926	0319262004	Waller Rd	PUB
MS033	ELK PLAIN PIT	418.491	WP	NPDES	MEP-6200	Sludge	OT			6	1	031814	0318142001	23101 Mnt Hwy E	PUB
MS034	SQUALLY CR W FORK @ 64TH	349.046	WP	CIP	D082-43003	Ditch	FM			3	4	032023		3206 64th St E	PUB
MS035	SQUALLY CR E FORK @ 64TH	354.424	WP	CIP	D082-43003	Ditch	FM			3	4	032033		3206 64th St E	PUB
MS036	SQUALLY CR POND	345.892	WP	NPDES	D082-43003	Pond	WQ			3	4	032023	0320234017	Waller Rd	PUB
MS037	WALLER RD PIT	267.195	WP	NPDES	MEP-6200	Other	OT			3	4	032023	0320232025	30th Ave E	PUB
MS038	SQUALLY CR @ PIONEER	21.856	WP	NPDES	D082-43003	Stream	FM			3	4	032014	0320141078	3704 Pioneer Way E	PVT
MS008	HEMLOCK PND A	546.254	WP	CIP	D329-99903	Pond	SG		10199801	3	2	041914	0419147027	116th Ave E / 144th St E	PUB
MS013	ATES 7	554.963	WP	CIP	D329-99903	Pond	SG			3	2	0419143	7165800410	OLD MILITARY RD / 136TH ST E	PUB
MS060	CLARKS CREEK	25.498	USGS	WS		Stream	FM			3	2	0420301	0420301006		PUB
MS061	SWAN CREEK	397.941								3	5				
MS062	CLEAR CREEK	24.290	USGS	WS		Stream	FM			3	4	0320133	0320133013	PIONEER WAY E / 44TH AV E	PUB
MS063	HYLEBOS CREEK	18.905	USGS			Stream	FG			4	2	0420064		HYLEBOS CR / PACIFIC AV	PUB
MS040	RB2	26.934	WP	NPDES			WQ			10	7	0022274	0022274030	186TH AV / 116TH ST	PVT
MS042	RB4	22.571	WP	WQ			WQ			10	7	0022274	0022274030	186TH AV / 116TH ST	PVT
MS039	RB1	23.853	WP	NPDES		Ditch	WQ			10	7	0022274	0022274059	186TH AV / 116TH ST	PUB
MS041	RB3	32.118	WP	NPDES		Ditch	WQ			10	7	0022274	0022274026	186TH AV / 116TH ST	PUB
MS043	RB5	19.713	WP	NPDES		Stream	WQ			10	7	00222341	0022345005	186TH AV KN	PUB
MS044	RB6	73.159	WP	NPDES		Stream	WQ			10	7	0022274	0022263014	BLISS COCHRAN RD / 114TH ST	PUB
MS045	RB7	24.575	WP	NPDES		Stream	WQ			10	7	0022271		SR 302 / ROCKY CREEK RD	PUB
MS046	RB8	17.109	WP	NPDES		Ditch	WQ			10	7	0022274	0022271003	186TH AV CT / 186TH AV	PVT
MS047	RMW1	393.040	OT	CIP			MW			6	1	0419312	0419312058	CANYON RD E / 52ND AV E	PVT
MS048	RMW3	434.860	OT	CIP		Grnwat	MW			6	1	0418061	0418062008	62ND AV E	PUB
MS049	POT	381.303	OT	CIP		Grnwat	MW			6	1	0319363	0319363038	192ND ST E	PUB
MS050	SG1	385.113	WP	CIP		Pond	SG			6	1	0318011	0318012005	192ND ST E / 50TH AV E	PVT
MS051	PZ1	432.626	OT	CIP		Grnwat	MW			6	1	0318012	0318012009	200TH ST E	PVT
MS052	PZ3	426.736	OT	CIP		Grnwat	MW			6	1	0318011	0318011003	200TH ST E / 54TH AV E	PVT
MS053	FR1	427.135	WP	CIP		Grnwat	MW			6	1	0418064		67TH AV E / 204TH ST E	PUB
MS054	FR2	519.743	WP	CIP		Grnwat	MW			12	1	0418062		216TH ST E / 78TH AV E	PUB
MS056	FR32	514.068	WP	CIP		Grnwat	MW			6	1	0418043	0418047001	92ND AV E / 204TH ST E	PUB
MS055	FR31	510.567	WP	CIP		Grnwat	MW			6	1	0418043	0418047001	92ND AV E / 204TH ST E	PUB
MS057	LAKEVIEW PIT	271.125	WP	NPDES	D082-43006	PIT	OT			6	6	0219123	0219122061	47TH AVE SW / 121 ST SW	PUB
MS058	BLAU PIT (EATONVILLE)	714.208	WP	NPDES	D082-43014	PIT	OT			14	1	0416094	0416094053	SR161 / OHOP VALLEY EXT.	PUB
MS059	FR4	440.407	WP	CIP		Grnwat	MW			6	1	0419332	0419332005	GEM HEIGHTS DR E	PVT
MS027	TULE LK 12	299.264	WP	NPDES	D072-99906		MW							852 130TH ST S	PUB
MS025	12522 CANYON RD E	464.277	WP	CIP	D082-43003	Ditch	FM			6	3	0319124	0319124072	12522 CANYON RD E	PUB

TABLE 3 - 1998 MAINTENANCE FUNCTIONS

FUNCTION	MEASUREMENT	PLANNED	ACTUAL	$$ SPENT
Ditching with backhoe	Ditch feet	72,067	1,272,177	$273,576.00
Ditching with drott	Ditch feet	25,436	25,825	$61,083.00
Beltloading	Ditch mile	231	176	$254,190.00
Manually clean culvert ends	Each	9,116	9,161	$51,969.00
hanically clean culverts	Each	1,562	806	$17,131.00
Grate tops cleaned	Each	2,501	4,781	$17,604.00
Mechanically clean catch basins	Each	5,666	3,468	$84,460.00
Jet rodding	Lin. feet	209,011	116,817	$80,589.00
Repair/replace culvert pipe	Lin. feet	3,212	5,033	$217,313.00
Repair/replace catch basin	Labor hour	718	1,291	$64,718.00
Repair/replace drywells	Labor hour	3,649	3,289	$181,402.00
Erosion control repair	Labor hour	889	406	$20,188.00
Holding ponds	Each	50	120	$150,341.00
Ditching with Ditchmaster	Ditch mile	233	181	$158,762.00
Self contained street sweeping	Cntr.lane mile	3,697	1,676	$167,859.00
Misc. drainage repair	Labor hour	5,548	8,475	$359,056.00
Litter removal	Labor hour	1,419	3,985	$32,583.00
				$2,192,824.00

TABLE 4 - DRAINAGES SHARED with OTHER MUNICIPALITIES

CITY	S T R	LOCATION	CONVEYANCE
Bonney Lake	34 20 05	South Prairie Road E.	Roadside drainage on Elhi Hill - South Prairie Rd.
Bonney Lake	03 19 05	South Prairie Road E.	Roadside drainage along South Prairie Road E.
Buckley	04 19 06	Mundy Loss & Henkelman Rd.	18" concrete pipe discharging north into Pierce County drainage ditch.
Edgewood	08 20 04	Off of 25th St. E. and also	(3) 12" culverts under Freeman Road
		on Freeman Road	Road discharge into catch basins - pipe outlets are.
			on Pierce County side, and roadside ditches off of 25th St. E
Edgewood	22 20 04	Chrisella Road E.	Roadside drainage into filtration gallery at Todd Rd. and overflow discharge
			into Wapato creek.
Fife	06 20 04	SW quarter at 12th St. E.	12" culvert on SE corner of intersection - 12" pipe draining into 24"
		and 54th Ave	corrugated metal pipe.
DuPont	33 19 01	Mounts Rd.	Roadside drainage along Mounts Rd., goes from the City of Dupont to county
Milton	09 20 04	Taylor St. near 92nd Ave E.	12" pipe under Taylor St. near 92nd Ave E, drains into county ditch.
Milton	06 20 04	70th Ave and near 10th St. E.	12" pipe under ground connects into catch basin on 70th Ave - catch basin appears to be
			on Pierce County side of road near 10th St. E.
Puyallup	35 20 04	Shaw Rd.	Shaw Rd. meanders in and out of Pierce County and the City of Puyallup
Sumner	19 20 05	Sumner-Tapps County Road	12' concrete cylinder pipe that runs parallel to sumner-Tapps Co.Rd., connects to
			Pierce County system at county line into Salmon Creek
Tacoma	04 19 03	Park Ave, Bryton St. & Croft St	12" concrete cylinder pipe - crosses from north of 96th St. onto roads
University Place	15 20 02	35th & Mildred	10" forced main pumped into pump station
University Place	29 20 02	Chambers Creek Road	Roadside drainage off of Chambers Creek Rd.

TABLE 5 - 1998 NPDES EXPENDITURES

DEPT/PROGRAM	SWMP COMMITMENT		ACTUAL EXPENDITURE	
	FTE	$	FTE	$
Water Programs				
Capital Improvement Program	7.3	633,000	8.5	5,305,046
Pond & Creek Maintenance	-	-		
District Court Crew	-	-		
NPDES Coordination & Transfer to PALS	.5	46,500	2	371,052
Monitoring	1.1	77,550	.7	41,431
Watershed Planning	2.5	223,900	2.5	275,964
CWSP	1.25	125,000	1.5	107,017
Industrial Inspection	1.7	116,100	.1	3,738
River Improvement - Carbon River Bank Stabilization	-	35,000 for slope stabilization	Varies	94,000
Buyouts	-	-	Varies	497,339
Garbage Cleanup	-	-	Varies	20,000
Levee Grading	-	-	Varies	15,718
Willow Planting	-	-	Varies	8,822
Drainage Investigations	1.6	116,550	1.97	117,494*
Tacoma Pierce County Health Department				
Recreational Shellfish	-	-	.2	7,600
On-Site Sewage O&M	-	-	1.8	125,000
On-Site Sewage - Burnett	-	-	.3	200,000
Wellhead Protection			.1	7,000
Bathing Beach Sampling	-	-	.1	8,000
Groundwater Monitoring	1.5	108,000	1.5	120,000
Compliance Group	2	143,400	3	200,000
Rocky Bay On-Site	.1	7,300	.1	7,000
Solid Waste	2	143,400	2	143,000
Moderate Risk Waste	-	-	.5	Not available
Site Hazard Assessment	-	-	.5	Not available
PALS				
Implementation of Stormwater Management Manual	17	1,253,000	17	1,200,000
Code Enforcement	4	452,100	5	405,000
Transportation Services				
Road Design	2	154,000		
Road Maintenance	23.75	1,958,200	24.75	2,192,824

DEPT/PROGRAM	SWMP COMMITMENT		ACTUAL EXPENDITURE	
	FTE	$	FTE	$
Pierce County Conservation District and Stream Team				
	-	-	1.4	99,270
Parks and Recreation				
Conservation Futures	1	-	1	2,198,290
Training	-	5,150	-	7,221
Adequate Information				
Mapping	1	66,000	varies	800,000 (98 & 99)
Education				
	1	60,000	4	200,000

* Does not include PALS figures, which is wrapped into their budget.